

PATENT  
S/N: 10/645,227

Docket No. 1232-5117

**LISTING OF CLAIMS**

Claims 1 and 3-16 are pending in this application and had been allowed. By this amendment, claims 1, 4-7, 10-11, 14 and 15 are amended as shown. The following listing of claims will replace all prior versions, and listings, of claims in the application.

**Claim 1 (currently amended):** An apparatus for controlling a printhead of a printing apparatus which prints by relatively moving the printhead across a printing medium, comprising:

control means for feedback-controlling a carrier supporting the printhead by using an ~~ideal~~ predetermined speed and an ~~ideal~~ predetermined position;

carrier position detection means for detecting carrier position information to be referred to by said control means;

carrier speed detection means for detecting carrier speed information to be referred to by said control means; and

speed estimation means for calculating an estimated speed at a predetermined ratio by using the ~~ideal~~ predetermined speed referred to by said control means,

wherein said control means does not refer to, as speed information used for the feedback control, the carrier speed information detected by said carrier speed detection means, and refers to the ~~ideal~~ predetermined speed or the estimated speed until the carrier moves by a predetermined amount after start of operation.

**Claim 2 (canceled).**

**Claim 3 (previously presented):** The apparatus according to claim 1, wherein said control means refers to the estimated speed as 0 until the carrier moves by a predetermined amount after start of operation.

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**Claim 4 (currently amended):** The apparatus according to claim 1, wherein an independent value can be selected for each ~~ideal~~ predetermined speed as the predetermined ratio used for calculation by said speed estimation means.

**Claim 5 (currently amended):** The apparatus according to claim 4, wherein the predetermined ratio used for calculation by said speed estimation means is set to a value which makes a difference between the estimated speed or the carrier speed information and the ~~ideal~~ predetermined speed fall within a predetermined range.

**Claim 6 (currently amended):** A method of controlling a printhead of a printing apparatus which prints by relatively moving the printhead across a printing medium, comprising:

a control step of feedback-controlling a carrier supporting the printhead by using an ~~ideal~~ predetermined speed and an ~~ideal~~ predetermined position;

a carrier position detection step of detecting carrier position information to be referred to in the control step;

a carrier speed detection step of detecting carrier speed information to be referred to in the control step; and

a speed estimation step of calculating an estimated speed at a predetermined ratio by using the ~~ideal~~ predetermined speed referred to in the control step,

wherein in said control step, the carrier speed information detected by said carrier speed detection step is not referred to, and the ~~ideal~~ predetermined speed or the estimated speed is referred to as speed used for the feedback control until the carrier moves a predetermined amount after start of operation.

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**Claim 7 (currently amended):** An apparatus for controlling a printhead of a printing apparatus which prints by relatively moving a carrier supporting the printhead across a printing medium, comprising:

encoder means for detecting carrier speed information and carrier position information;

control means for feedback controlling the carrier by using a predetermined speed profile;

and

storing means for storing speed information corresponding to moving amount of the carrier,

wherein said control means feedback-controls the carrier by using the speed information stored in the storing means without referring to the speed information detected by the encoder means and with referring to an ~~ideal~~ predetermined speed or an estimated speed until the carrier moves in a predetermined moving amount from the start of movement, and feedback-controls the carrier by using the speed information detected by the encoder means after the moving amount of the carrier becomes greater than the predetermined moving amount.

**Claim 8 (previously presented):** The apparatus according to claim 1, wherein the predetermined ratio is 1 or less.

**Claim 9 (previously presented):** The method according to claim 6, wherein said control step refers to the estimated speed as 0 until the carrier moves by a predetermined amount after start of operation.

**Claim 10 (currently amended):** The method according to claim 6, wherein in said control step an independent value can be selected for each ~~ideal~~ predetermined speed as the predetermined ratio used for calculation by said speed estimation means.

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**Claim 11 (currently amended):** The method according to claim 10, wherein in said control step the predetermined ratio used for calculation by said speed estimation means is set to a value which makes a difference between the estimated speed or the carrier speed information and the ~~ideal~~ predetermined speed fall within a predetermined range.

**Claim 12 (previously presented):** The method according to claim 6, wherein the predetermined ratio is 1 or less.

**Claim 13 (previously presented):** The apparatus according to claim 7, wherein said control means refers to the estimated speed as 0 until the carrier moves by a predetermined amount after start of operation.

**Claim 14 (currently amended):** The apparatus according to claim 13, wherein an independent value can be selected for each ~~ideal~~ predetermined speed as the predetermined ratio used for calculation by said speed estimation means.

**Claim 15 (currently amended):** The apparatus according to claim 14, wherein the predetermined ratio used for calculation by said speed estimation means is set to a value which makes a difference between the estimated speed or the carrier speed information and the ~~ideal~~ predetermined speed fall within a predetermined range.

**Claim 16 (previously presented):** The apparatus according to claim 7, wherein the predetermined ratio is 1 or less.